An Roinn Tithíochta,
Pleanála agus Rialtais Áitiúil
Department of Housing,
Planning and Local Government

Investigative Foreshore Licence Application (Offshore Renewable Energy)

Please indicate project category as appropriate:

Wave:	☐
Tidal:	☐
Wind:	X
Other:	**Please specify:**

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Part 1: Proposal Details (Attach additional documents as required)

1.1	**Provide background information on the project including reason and objectives of the site investigations, the site selection process and any proposals for future works at the site.** The AFLOWT project – Accelerating market uptake of FLoating Offshore Wind Technology – which was recently awarded Interreg North West Europe (NWE) funding, has a main objective of demonstrating a high survivability cost competitive Floating Offshore Wind (FOW) technology. SEAI is a partner in the project, which involves seven other organisations working together as a consortium. SEAI's main role is as test site owner, having responsibility for consenting the offshore elements of the site (including the technology) and for the management of the onshore and offshore builds. The FOW platform design and fabrication, along with electrical cable connection, monitoring system and turbine control system are managed by SEAI's partners on the project, including SAIPEM who are leading the FOW design. The project seeks to demonstrate a single FOW turbine at the consented Atlantic Marine Energy Test Site (AMETS) off the west coast of Co. Mayo, Ireland. AMETS was granted a Foreshore Lease in November 2015 to test for wave energy devices. However, pipeline analysis, of wave energy projects throughout the world, suggest that there are no wave technologies suitable for testing at this site until mid-2020s. Due to depth and weather conditions the site is also suitable for floating wind technologies, hence it was deemed suitable for this project. It is proposed to apply for a foreshore licence to deploy a turbine up to 6 MW at the AMETS site along with subsea cable and ancillary equipment. Deployment of the turbine is intended in 2022/2023 subject to consenting for the project. **This application constitutes a Foreshore Licence application for the undertaking of site investigation (SI) activities. These SI are required in order to inform the detailed design of the FOW components and mooring system and the undertaking of Environmental Impact Assessment (EIA) and Appropriate Assessment (AA) for the project.** SI activities proposed include: - Multi-Beam Echo Sounder (MBES). - Side-Scan Sonar (SSS). - Sub-Bottom Profiling (SBP). - Cone Penetration Testing (CPT). - Benthic sampling of the subtidal and the intertidal sediment.

	These SI activities (geophysical and geotechnical) are required in order to provide the project team with more information on the make-up of the various layers of sediment and / or rock under the seafloor at the AMETS site and the soils / sediments and stratigraphy of the seabed. The benthic sampling will form part of the Environmental Impact Assessment Report (EIAR) and AA for a technology deployment Foreshore Licence application. Further information on techniques, equipment and timing of the SI are included in the report which accompanies this application, 'Report to Accompany Foreshore Licence Application for Site Investigation'.
1.2	**Possible MW output of final development:** Up to 6 MW
1.3	**Type of surveys proposed (e.g. geophysical, geotechnical, archaeological or benthic.** Geophysical surveys as follows: - Multi-Beam Echo Sounder (MBES) - Side-Scan Sonar (SSS) - Sub-Bottom Profiling (SBP) Geotechnical survey as follows: - Cone Penetration Testing (CPT) Ecological survey as follows: - Benthic sampling of the subtidal and the intertidal sediment
1.4	**Survey methodologies and equipment to be used for each survey type proposed:** MBES methodology & equipment; - High resolution multibeam will be used (200-400 Khz) and contour intervals at 0.20 m will be presented. - Kongsberg EM2040, or equipment of similar specification, will be used for the bathymetric survey (200-400 Khz). It is composed of the latest high accuracy technology elements as well as innovative digital image treatment systems. This equipment operates high resolution works under International IHO standards. SSS methodology & equipment: - The towed vehicle is a cylindrical device with hydrodynamic design provided with fins, which is towed behind the stern of the boat. SSS is provided by two transducers that each emit acoustic waves across the water in a frequency range between 100 and 900 kHz. The reflection of this wave,

	coming from the bottom, is caught by the same transducers, amplified and transmitted across the cable, up to the recorder, where the corresponding sign is digitized, processed and recorded, to identify the different substrate morphologies, and the visualization of objects. - Edgetech side scan sonar, or equipment of similar specification, will be used (100 -900khz). SBP methodology & equipment: - SBP is a method of determining the composition of the seabed using sound pulse techniques. SBP obtains high-resolution vertical profiles of the unconsolidated matter on the sea floor. The SBP transducer emits pulses of acoustic energy (conical, short and high intensity waves) onto the seabed. A portion of this energy is reflected from the seabed and a portion penetrates inside the sediment and is reflected back by the different layers. The reflected waves come back to the surface where they are caught by the same transducer that turns the echoes received in electrical signs. The acoustic waves cross the subsoil and the reflected echoes are caught by an acoustic receiver. - The Ixblue Echoes 3500 SBP, or equipment of similar specification, will be used (i.e. with operating frequencies ranging from 1.7 to 5.5 khz). The equipment will be hull mounted on a Marine Institute (MI) vessel. CPT methodology & equipment: - CPT involves pushing an instrumented device into the seabed at a constant speed with continuous measurement of a range of reactions. No significant underwater acoustic signal results from the operation. CPT uses a wheel drive system to push the CPT rods into the seabed. Wheel friction is imposed by hydraulic force. A self-tensioning electric winch with heave compensation feeds the umbilical for power supply and data communication. The system is therefore operated by a single direct force being applied to the rods rather than by a hammering, coring or drilling action. During the test the system pushes the cone into the seabed with a penetration rate of 2 cm/s (+/- 0.5 cm/s). Readings are taken every 1 cm and are displayed digitally and graphically on the screen on real time as well as stored in the computer. - A Ronson seabed CPT, or equipment of similar specification, is expected to be used. The instrument weighs in the region of 10 tonne and is deployed by lowering it directly onto the seabed from the stern of the vessel using a crane. For safety purposes, it is recommended to combine the CPT frame with an acoustic USBL beacon to track the system during its descent and after it is landed on the seabed. The MI vessel's Ixblue GAPS USBL is suitable, operating with a frequency that is from 21.5 to 30.5 Khz. Benthic Sampling methodology & equipment: - Subtidal sediments will be collected by grab surveys (day grab) and intertidal stations will be collected using a standard 20 cm core to complement the original methodology and data set for AMETS. Standard sampling techniques

	for subtidal and intertidal collection will be employed to include collection of macrofauna and associated sediment particle size and organic content. - It is considered likely that twenty-five (25) random stations from test area (A, B and the cable route) and fifteen (15) random stations from appropriate control locations for each test area and the cable route will require to be sampled for macrofauna particle size and organic content. This gives a total of forty (40) subtidal grab stations. - It is considered likely that six (6) intertidal sediment stations will be required to characterise Belderra Strand, the cable landfall location.
1.5	**Describe the nature and scale of any structure to be erected on the foreshore for testing the suitability of the site. Is the structure proposed to be temporary or permanent?** None.
1.6	**Provide information on proposed mooring, marking and lighting arrangements for any proposed deployment of instrument arrays.** Exact details of survey vessels and equipment will be confirmed upon appointment of suitable consultants. All SI works will comply with navigational safety requirements as established by the Commissioner of Irish Lights (CIL).
1.7	**Has the applicant held or does the applicant hold any previous Foreshore Licences, Leases or applications over the area sought or over any other area? (Give details including Department's file reference number(s)).** SAIPEM, the applicant, has not held or does not hold any previous Foreshore Licence, Lease or application in Ireland. SEAI, the nominated contact, holds a Foreshore Lease for the AMETS site as follows: - Lease granted 25th November 2015 between the Minister for Environment, Community and Local Government and SEAI (FS005726)
1.8	**Indicative timing of the investigation works: (i) Start date (ii) Duration (iii) Any other information relevant to timing.** SI works are proposed to be undertake between May and September 2020 subject to suitable weather windows and vessel availability. Duration is anticipated to be in the order of 1 month, again subject to an appropriate weather window.
1.9	**Describe any likely interactions with activities of the public or other foreshore users during the investigative works (e.g. fishing,**

	aquaculture, sailing, and surfing). Describe any measures proposed to minimise inconvenience to other users. Users in the area include fishing, recreational and commercial vessels. SI activities will be undertaken from vessels that will seek to minimise inconvenience to all other users. No interaction with foreshore users is anticipated.
1.10	**Describe any consultations undertaken to date with other foreshore users.** A meeting was held on the 25th of September 2019 in Belmullet to give an update on the overall project and planned development. Representatives from the following organisations were present: • Marine Institute • Mayo Co. Co. • BIM • NPWS • Western Development Commission • Bord na Mona • Udaras na Gaelteactha • SEAI • SAIPEM SEAI attended a meeting of North West Regional Inshore Fisheries Forum (NWRIFF) on the 10th December 2019 in Ballina to give an update on the project and to start discussions with local fishermen and foreshore users. Further meetings are planned with fishing organisations, via BIM, and with NPWS in coming months.
1.11	**Describe any consultations undertaken to date with other consent authorities e.g. planning authority, Commission for Energy Regulation etc.** A meeting was held on the 25th of September 2019 in Belmullet to give an update on the project and planned development. Representatives from Mayo Co. Co. were present. Meetings have been held with ESB Networks on grid connection for the test site. Planning application for the substation has been granted and planned cable route has been described.
1.12	**Describe briefly any consultations undertaken with relevant authorities (e.g. county council, port/harbour authority etc) or State Agencies e.g.**

	National Parks & Wildlife Service (NPWS), National Monuments Service (NMS) of Department of Arts, Heritage and the Gaeltacht: Please see response to section 1.10 above.
1.13	**Describe briefly any support received or under application with the Sustainable Energy Authority of Ireland (SEAI) or other State Agency:** The Sustainable Energy Authority of Ireland (the nominated contact for this Investigative Foreshore Licence Application) has been the sole funder of the development of AMETS to date. SEAI's budget is received from the Department of Communication, Climate Action and the Environment (DCCAE) and a percentage of funding for the AFLOWT project is from Interreg North-West Europe.

Part 2: Proposed Site. (Attach additional documents as required)

2.1 **Delineate the proposed site in red on a latest edition map at a scale of 1:10 000 or larger scale if more appropriate and available, indicating:**

(i) the entire area;

(ii) the hectarage involved below the line of high water of medium tides clearly marked in RED and

(iii) the area of foreshore involved in metric measurements (i.e. hectares, metres squared or square kilometres etc).

Please see 'AFLOWT_Foreshore Licence Map' which demonstrates the above requirements.

2.2 **Geographic co-ordinates of the area under application, where the area can also be identified on the Ordnance Survey map, specify Ordnance Survey co-ordinates also.**

Test Area A Coordinates

Point	Easting (ITM)	Northing (ITM)	Latitude (WGS84)	Longitude (WGS84)
1	449977	840395	54°17′25″	-10°18′16″
2	451874	840271	54°17′23″	-10°16′31″
3	452154	838839	54°16′37″	-10°16′13″
4	452879	837733	54°16′02″	-10°15′31″
5	452874	837022	54°15′39″	-10°15′30″
6	449909	837736	54°15′59″	-10°18′15″

Test Area B Coordinates

Point	Easting (ITM)	Northing (ITM)	Latitude (WGS84)	Longitude (WGS84)
7	459455	833691	54°13′58″	-10°09′21″
8	460650	833655	54°13′58″	-10°08′15″
9	460612	832388	54°13′17″	-10°08′15″
10	459417	832424	54°13′17″	-10°09′21″

Coordinates for area of subtidal grabs within the greater AMETS area

Point	Easting (ITM)	Northing (ITM)	Latitude (WGS84)	Longitude (WGS84)
1	449921	841380	54°17'57"	-10°05'21"
2	452284	841274	54°17'56"	-10°16'10"
3	465691	832366	54°13'21"	-10°03'35"
4	449921	837058	54°15'37"	-10°18'13"
5	462445	829966	54°12'00"	-10°06'30"

Coordinates for area of intertidal cores at Belderra strand

Point	Easting (ITM)	Northing (ITM)	Latitude (WGS84)	Longitude (WGS84)
1	465204	831016	54°12'37"	-10°03'59"
2	465500	831282	54°12'46"	-10°03'44"
3	465592	831194	54°12'43"	-10°03'38"
4	465667	831175	54°12'43"	-10°03'34"
5	465583	831030	54°12'38"	-10°03'39"
6	465388	830857	54°12'32"	-10°03'49"
7	465339	830906	54°12'34"	-10°03'25"

Cable Route Corridor Coordinates

Point	Easting (ITM)	Northing (ITM)	Latitude (WGS84)	Longitude (WGS84)
A	452741	837954	54°16'09"	-10°15'39"
B	453968	836677	54°15'29"	-10°14'29"
C	455588	835791	54°15'02"	-10°12'58"
D	457150	834752	54°14'30"	-10°1130"
E	459010	833364	54°13'47"	-10°9'45"
F	459442	833258	54°13'44"	-10°9'21"
G	460632	833068	54°13'39"	-10°8'15"
H	461249	833080	54°13'40"	-10°7'41"
I	463594	832700	54°13'30"	-10°5'31"
J	464897	832012	54°13'09"	-10°4'18"
K	465430	831007	54°12'37"	-10°3'47"
L	465427	830914	54°12'34"	-10°3'47"
M	464748	831862	54°13'04"	-10°4'26"
N	464766	832480	54°13'24"	-10°4'26"
O	461224	832864	54°13'33"	-10°7'42"
P	460627	832882	54°13'33"	-10°8'15"
Q	459434	833011	54°13'36"	-10°9'21"
R	458569	833161	54°13'40"	-10°10'9"
S	458096	833702	54°13'57"	-10°10'36"
T	456274	835120	54°14'41"	-10°12'19"
U	455172	835804	54°15'02"	-10°13'21"
V	453780	836467	54°15'22"	-10°14'39"
W	452870	837455	54°15'53"	-10°15'31"

2.3 **Delineate proposed site on relevant Admiralty Chart.**

Please see 'AFLOWT_Site Location Map' which demonstrates the proposed site on relevant Admiralty Chart.

2.4	**Relevant Local Authority:** Mayo County Council
2.5	**Location name and nearest townland name:** The AMETS site is offshore from Belderra Strand. The nearest townlands include An Geata Mór / Binghamstown, Cross (Boyd) and Ballymacsherron.
2.6	**Distance from nearest other developments, including any offshore renewable energy developments on the foreshore:** The application area is approximately: • 3.5 km to the south of the Mayo County Council Frenchport application per foreshore reference number FS006451 (determined 9th August 2016). • 18.5 km to the south of the Shell E&P Ireland Ltd application per FS005190 (determined 22nd June 2010). • 18.5 km to the south of the Shell E&P Ireland Ltd application per FS005191 (determined 15th January 2010). • 39 km to the north of the America Europe Connect 2 Ltd subsea fibre optic cable, proposed to be located to the south of Achill Island per foreshore reference number FS006889 (in consultation). • 40 km to the north of the Mayo County Council Mulranny Pier application, proposed per foreshore reference number FS006798 (in consultation). The above list is not exhaustive but provides a representative list of nearest foreshore applications in the immediately surrounding area.
2.7	**Distance from shore:** SI at Test Site A is located approximately 16 km from shore (Belderra Strand). SI at Test Site B is located approximately 6 km from shore (Belderra Strand). SI along the cable route corridor will reach closest to the shore at approximately points J and M, which are 1.136km and 1.164km respectively from shore. SI to include intertidal sediment stations (core samples) will be be required to characterise Belderra Strand. These will be on the beach/shoreline.
2.8	**Distance from nearest aquaculture operation:** From Test Area B to Elly Bay site: 9.908 km.

	Please see 'AMETS Distance Summary' for location of nearest aquaculture infrastructure.
2.9	**Distance from any other sensitive location e.g. fish spawning ground, designated Shellfish Growing Waters,** Test Site A and Test Site B intersect with Cod, Horse Mackerel, Herring, Mackerel, Megrim, and White Belly Angler Monk fish nurseries and Herring, Horse Mackerel and Megrim spawning areas. Please see 'AMETS Distance Summary' for location of fish nurseries and spawning areas.
2.10	**Any other site details considered relevant:** There are four shipwrecks within approx. 5 – 30 km of test sites A & B. None will be impacted by the geotechnical/geophysical SI surveys. Please see 'AMETS Distance Summary' for location of the shipwrecks.

Part 3: Nature Conservation Considerations (Attach additional documents as required)

3.1 **Distance from nearest Natura 2000 sites (i.e. Special Protection Area (SPA) or Special Area of Conservation (SAC):**

Table 8.1. SAC's within 15 km and SPA's within 20 km of the AMETS

Site name	Site code
West Connacht Coast SAC	002998
Mullet/Blacksod Bay Complex SAC	000470
Erris Head SAC	001501
Broadhaven Bay SAC	000472
Duvillaun Islands SAC	000495
Iniskea Islands SAC	000507
Mullet Peninsula SPA	004227
Blacksod Bay/Broadhaven SPA	004037
Termoncarragh Lake and Annagh Machair SPA	004093
Duvillaun Islands SPA	004111
Iniskea Islands SPA	004004
Inishglora & Inishkeeragh SPA	004084
Illanmaster SPA	004074
Stags of Broad Haven SPA	004072

Table 8.1 extracted from Appropriate Assessment, please see document 'AA_SCREENING_AMETS_SI_D0.6'.

3.2 **Name and location of Natura 2000 sites in or around the project area:**

From Appropriate Assessment:

"West Connacht Coast SAC, Duvillaun Islands SAC, Iniskea Islands SAC and Mullet/Blacksod Bay Complex SAC … are considered to be within the zone of influence of the proposed project".

West Connacht Coast SAC is a large coastal site largely comprised of two dynamic coastal water areas of the west coast of Ireland and a range of associated shallow marine habitats. Test Site B is located within the West Connacht Coast SAC.

Duvillaun Islands SAC comprises a group of uninhabited islands, rocks and reefs, situated at the southern tip of the Mullet Peninsula

Inishkea Islands SAC. The Inishkea Islands are two low-lying, exposed and wind-swept islands separated by a narrow channel. They lie 5km off the Mullet Peninsula

	Mullet/Blacksod Bay Complex SAC is large coastal site, which comprises much of the Mullet Peninsula, the sheltered waters of Blacksod Bay and the low-lying sandy coastline from Belmullet to Kinrovar.
3.3	**Describe potential impacts of the site investigations on Natura 2000 sites.** The AA states "No impact predicted" on any marine mammal, bird or habitat in a SAC or SPA within the zone of influence of the proposed project. See Table 9.4 from the Appropriate Assessment for the Summary of impact prediction (direct, indirect and cumulative). In addition, Section 11 of the report: *Screening Matrix of the Appropriate Assessment* highlights*:* "No component of the proposed project has the potential, alone or in combination with other projects or plans, to give rise to any impact on a Natura 2000 site." Finally, Section 13 Screening Statement concludes; "The conclusion of this assessment is that the proposed project will have no impact on the features of interests or conservation objectives of any Natura 2000 site/s, Annex I habitats or Annex II species and that further Appropriate Assessment is not required."
3.4	**Describe any measures proposed to mitigate possible impacts on Natura 2000 sites and other key marine receptors.** The proposed site investigations will be from Marine Institute owned and operated RV Celtic Explorer. This vessel has been designed to meet the noise requirements of the review and recommendations for underwater noise for research vessels report (ICES. 1995). All operations from Celtic Explorer follow the guidelines to manage the risk to marine mammals from man-made sound sources in Irish waters (NPWS, 2014).
3.5	**Describe any other projects or plans for the area, anticipated or developed, that in combination with this proposal, may have a significant effect on a Natura 2000 site:** A review of Mayo Co. Co. planning applications on 11th September 2019 did not indicate any additional projects or plans for the area within the vicinity of the proposed SI's that could be considered to lead to cumulative impacts in combination with the proposed SI's. Also please refer to Section 11. Screening Matrix of the Appropriate Assessment: "No component of the proposed project has the potential, alone or in combination with other projects or plans, to give rise to any impact on a Natura 2000 site."

Part 4: Navigational Safety Considerations.

4.1	**Distance from shipping lanes at nearest point. Illustrate on the appropriate marine charts accompanying the application.** No commercial shipping lanes intersect either test site locations. Nearest Fishing Port: from Test Area A to Belmullet Port is 11.15 km. Nearest Commercial Port: from Test Area A to Westport is 60.05 km Nearest Ferry Route: from Test Area A to Clare Island Ferry is 51.21 km Please see 'AMETS Distance Summary' for location of nearest fishing port, commercial port and ferry route.
4.2	**If a safety zone for passage of shipping (including fishing and leisure boats) is sought, supply details and give reasons.** n/a
4.3	**If any temporal /spatial restrictions are sought on the use of any type of fishing gear or leisure activity within the area, provide details and justification for such restrictions and indicate location(s) on appropriate marine charts.** n/a

Declaration and Consent:

The details provided here are correct to the best of my knowledge.

I understand that no works will be commenced, by me or my agents on the proposed site, without the prior written consent of the Minister. The granting or refusal of any foreshore investigation licence will not give rise on the part of the applicant to any expectation whatsoever for, right or entitlement to a grant of any future foreshore permission in respect of all or any part of any area of foreshore.

By submitting this application form, I agree that the details provided (with personal contact details redacted) are to be published on the Department of Housing website and also that the full information provided including contact details are to be processed and retained by the Department of Housing, Planning and Local Government and shared with all appropriate Prescribed Bodies (as part of the Prescribed Bodies Consultation process) in furtherance of consideration for a foreshore Consent under the Foreshore Act 1933 (and Foreshore Amendment Act 2011).

I give consent to the Minister and his servants to copy this application and to make (a redacted) copy available for inspection and copying by the public. This consent relates to this application, to any further information, or submission provided by me or on my behalf and to the publication of the licence document

Signed for and on behalf of the applicant:

Name of Signatory (block letters): PATRICIA COMISKEY

Position Held: Ocean Energy Programme Manager, SEAI

Date: 27th January 2020

Return completed applications to:

Marine Environment and Foreshore Section
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Email a copy of application documents: Foreshore@housing.gov.ie